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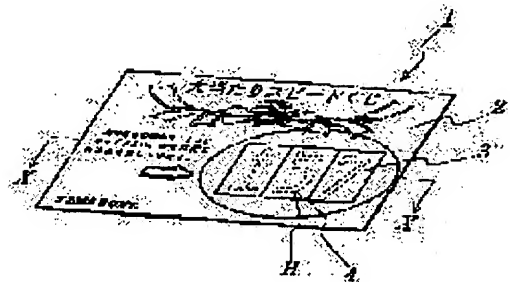
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(21)Application number : **09-060036**(71)Applicant : **TOPPAN FORMS CO LTD**(22)Date of filing : **27.02.1997**(72)Inventor : **HIGURE HISANO****(54) SCRATCH SHEET****(57)Abstract:**

**PROBLEM TO BE SOLVED:** To avoid development of shavings at the time of a confirmation of an information and to improve productivity of cost by providing an invisible information of a character, a figure, a pattern or the like with a scratch part provided at a predetermined part of a base material sheet surface by a transparent or the same colored heat-sensitive developing ink as the base material sheet surface.

**SOLUTION:** In a scratch sheet 1 constituted as 'A big prize in the lottery', a general printing such as a title, a decorative design, a publisher or the like is performed on a base material sheet 2 and a scratch part 3 is provided with the predetermined part thereof. Figures '1', '5' and '7' printed by an offset printing machine is provided as an invisible information with the scratch part 3 by a transparent heat-sensitive developing ink H. In a confirmation of this invisible information 4, the heat-sensitive developing ink H develops and a predetermined figure develops to visibly confirm this information by rubbing an optional position of the scratch part 3 by a coin, a nail or the like to develop a frictional heat.

**LEGAL STATUS**

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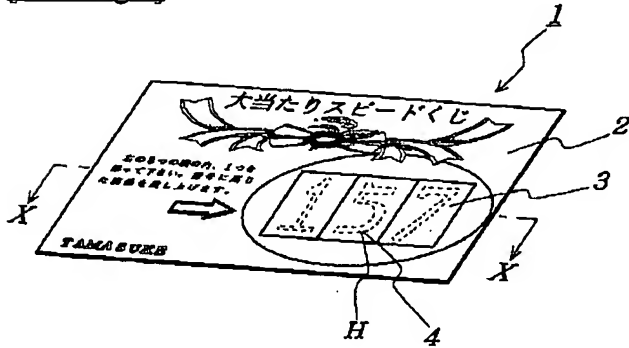
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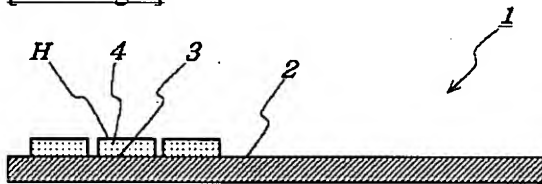
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## DRAWINGS

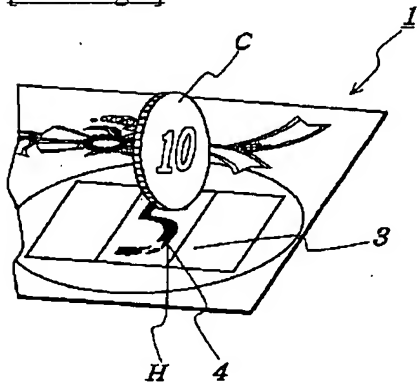
[Drawing 1]



[Drawing 2]



[Drawing 3]



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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention does not prepare an exfoliation ink layer like before, but relates to the scratch sheet which makes the information concerned discover by grinding in more detail invisible information, such as an alphabetic character given to the base material sheet surface, a figure, and a pattern, against a pawl, a coin, etc. about the scratch sheet which constituted the scratch section only from printing of invisible information.

[0002]

[Description of the Prior Art] It was the thing which the scratch sheet is usually covering and concealing information, such as an alphabetic character, a figure, and a pattern, in the opaque exfoliation ink (scratch ink) layer, and this exfoliation ink layer is ground [ thing ], and it removes [ thing / the hit of a premium and a prize, the blank, etc. are used as a simple lot known on that spot, ] it conventionally, and makes such information express.

[0003]

[Problem(s) to be Solved by the Invention] Therefore, with the conventional scratch sheet, at the time of an informational check, it deleted, when grinding an exfoliation ink layer, and there was inconvenience that dregs arose. Moreover, in spite of the configuration of the scratch section having been so convenient for a cost side or productivity that it was simple, it makes indispensable requirements two configurations called printed information and an exfoliation ink layer at the scratch section, and informational presswork and the formation process of the exfoliation ink layer which uses a special coater were required for it also about the production process.

[0004] Then, this invention aims at offer of the scratch sheet which deleted at the time of an informational check, and was not made to produce dregs, and was excellent in a cost side or productivity.

[0005]

[Means for Solving the Problem] In order to attain this object, by giving invisible information to the scratch section in the sensible-heat coloring ink of transparence or a base material sheet surface, and the same color, at the time of the check of the information, this invention person rubbed the scratch section in the pawl, the coins, etc., found out that invisible information could be discovered and hit on an idea of the scratch sheet of this invention with the frictional heat which this generated.

[0006] \*\*\*\*\* and the scratch sheet of this invention prepare the scratch section in the predetermined section of a base material sheet surface, and are characterized by coming to give invisible information, such as an alphabetic character, a figure, and a pattern, to this scratch section in the sensible-heat coloring ink of transparence or a base material sheet surface, and the same color.

[0007]

[Embodiment of the Invention] Although an example is given and being explained further in full detail hereafter, this invention is not limited at all by these. In addition, in here, it is the manifestation condition explanatory view of invisible information in which the rough perspective view of the scratch sheet whose drawing 1 is the example of this invention, and drawing 2 were given to X-X-ray sectional view of drawing 1 , and drawing 3 was given to the scratch sheet of drawing 1 .

[0008] As shown in drawing 1 and drawing 2 , the scratch sheet 1 of this example constituted as a "great success speed lot" While general printing of a title, a decoration pattern, a publisher name, etc. is performed to the 2nd page of a base material sheet The scratch section 3 is formed in that predetermined section, and it has sensible-heat coloring ink H of transparence in this scratch section 3, and comes to give the figure of "1", "5", and "7" printed with the offset press as invisible information 4.

[0009] The sensible-heat coloring ink H used by this invention is easy to be well-known, for example, mixes the color

coupler represented by the leuco dye reacted and colored under the developer represented by the phenolic compound, this developer, and heating with the binder component which consists of synthetic resin, and adds and ink-izes a solvent further.

[0010] As for the invisible information 4, it is desirable to give check-by-looking difficulty as much as possible, therefore a binder component with high transparency is chosen about the sensible-heat coloring ink in this invention, also about a developer and a color coupler, in a binder component, ink with high transparency is prepared by colorlessness or choosing a light-colored thing extremely, and invisible information is made more difficult [ a check by looking ].

[0011] In addition, although the sensible-heat coloring ink of transparency was illustrated in this example, in this invention, a pigment may be added in sensible-heat coloring ink, and information may be printed in invisibility as a base material sheet surface and the same color. Since the base material sheet surface is generally white, a white system pigment is added, but when using a colored base material sheet, coloring agents, such as a colored color and a colored pigment, are added. However, in this case, sensible-heat coloring ink is prepared so that the hue and contrast of a coloring color and a base material sheet surface by the sensible heat may differ from each other.

[0012] With the frictional heat which this generated, it can color, a predetermined figure (the inside of drawing "5") can be discovered, and said sensible-heat coloring ink H can check the information concerned by looking because the check of the invisible information 4 grinds the location of the arbitration of the scratch section 3 with Coin C or a pawl as shown in drawing 3 .

[0013] In addition, even if it is the case where that exfoliation of sensible-heat coloring ink itself arises could also protect the scratch section with synthetic resin excellent in transparency and thermal conductivity for a certain reason, and it rubs thereby very violently, information is discovered [ especially when usual rubs, it is satisfactory, but ], when it rubs very violently, without exfoliation of ink arising.

[0014]

[Effect of the Invention] As stated above, according to the scratch sheet of this invention, by having given invisible information to the scratch section in the sensible-heat coloring ink of transparency or a base material sheet surface, and the same color, it deletes at the time of an informational check, and dregs are not produced, and the effectiveness of excelling in a cost side or productivity is done so.

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CLAIMS

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[Claim(s)]

[Claim 1] The scratch sheet with which the scratch section is prepared in the predetermined section of a base material sheet surface, and it comes to give invisible information, such as an alphabetic character, a figure, and a pattern, to this scratch section in the sensible-heat coloring ink of transparency or a base material sheet surface, and the same color.

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